Imagining Ecologies through Sound: An Historic-ecological Approach to the Soundscape of the Mississippi Flyway

ALEXANDRA HUI

Abstract: This paper documents an example of the development of what I term "imagined ecologies," an individual or community's understanding of themselves as part of an ecological system. An examination of game call instructions and training records offers a strategy for understanding the soundscape of the Mississippi Flyway. I show that the sounds made and ways of listening to them — by humans and non-humans — was critical to the formation of an imagined ecology that saw nature as, paradoxically, a resource that could be managed and harvested but not quite replicated.

Résumé : Cet article documente un exemple du développement de ce que j'appelle les « écologies imaginaires », à savoir la perception qu'ont d'elles-mêmes les personnes ou les communautés en tant que parties d'un système écologique. Un examen des enregistrements d'instructions et de formation aux appeaux constitue une stratégie pour comprendre le paysage sonore de la voie de migration du Mississipi. Je montre que les sons produits et la façon de les écouter — par les êtres humains et non humains — ont été essentiels à la formation d'une écologie imaginaire qui considérait la nature comme, paradoxalement, une ressource qui pouvait être gérée et récoltée, mais qui ne pouvait pas tout à fait être reproduite à l'identique.

> "I believe if it were possible to give the average hunter the vocal organs of a wild duck, it would be about as difficult for him to simulate the duck's calling as it would be for him to sing some difficult selection from an opera which he had never heard, even if he could have given to him the voice of Caruso."
>
> — Tom Turpin, "How to Call Ducks" (1931)

This article has accompanying videos on our YouTube channel. You can find them on the playlist for MUSICultures volume 45, available here: http://bit.ly/MUSICultures-45. With the ephemerality of web-based media in mind, we warn you that our online content may not always be accessible, and we apologize for any inconvenience.

Hui, Alexandra. 2018. Imagining Ecologies through Sound: An Historic-ecological Approach to the Soundscape of the Mississippi Flyway. *MUSICultures* 45 (1-2): 35-52.

In 1936, the ducks began to sound different along the Mississippi River Flyway. Or actually, duck calls began to be heard differently by hunters. Dr. Harold Glenn, Thad McCollum, and Verne Tindall of Stuttgart, Arkansas founded the National Duck Calling Contest, the first of its kind, held on November 24, 1936. The competition marks the birth of the "contest call," performed in a built environment for evaluation by human judges, distinct from the "meat call," which was used in a marsh or on the water to draw down ducks to hunt. The same small reed instruments were used in both settings. In its second year, Little Rock (KARK) and St. Louis (KSD) radio stations began broadcasting the competition. A listener described "a wildness in these sounds" made by these men hunched over the microphone with their calls, and wistfully noted that the duck-callers "must be interesting men to know" (Fletcher 1989 [1947]: 302). Over radio, the audience could be heard whooping and cheering on the callers. Other than baseball, football, and the horse races of Oaklawn Park, the National Duck Calling Contest was the only other live sporting event broadcast in the state.[1] Competitors would call directly into the radio microphones, performing for each other, the other festival-goers crowded around the competition stage, and far-flung radio audiences. Participants in the early years competed in imitating the three main calls of the wild duck in quick succession: the flying call, the feeding call, and the mating call. Presumably, the ducks dabbling around the nearby flooded rice fields heard the competition calling as well, but those sounds were not, for the first time, intended for their ears.

Still held annually in Stuttgart, Arkansas, the National Duck Calling Competition has, over the last 80 years, expanded significantly (now it is titled the *World's* Championship Duck Calling Contest). Sponsors include Under Armour, Bud Light, Ducks Unlimited, Walmart, Riceland, various gun manufacturers, and several local businesses. The prize for first place is valued at over $15,000. The event is now a week-long affair that includes Clay Shooting, the Queen Mallard Pageant, a carnival, a collectibles show, a fun run, and a gumbo cook-off. The sounds have expanded too. The competition call is now a 90-second demonstration of virtuosity on the duck call instrument. The caller usually begins with a series of long, loud blasts that descend in a series of steps to liquid, mumbly chatter, interspersed with regular squawks and an additional descending series of honks.[2] Instead of the whoops and shouts of encouragement of the early years, the audience now politely applauds.

What can the duck sounds made and heard by humans and non-humans in the Mississippi Flyway over the last century tell us about the environment? A lot. The way in which people both made and listened to sounds reflected and reinforced a specific understanding of the environment. In this paper, I examine

how the sounds of the Mississippi Flyway were made and heard through a close reading of sources related to the development and use of duck calls from the 1930s to the 1960s, specifically, duck-calling instruction manuals and training records.

Listening to this archive of duck sounds allows us to track the development of what I term "imagined ecologies." I understand imagined ecologies to be an individual's or a community's understanding of themselves as part of an ecological system. This builds on Benedict Anderson's "imagined community," in which individuals become aware of and develop an affiliation with strangers in this same community (1983). Imagined ecology, as I conceive of it, is the moment in which individuals or communities recognize that they are part of a multi-species ecological commons. In a recent article about imagined ecologies, Emily O'Gorman draws on Donna Haraway and Anna Tsing in defining the term as the world-making possibilities and consequences of situated, partial understandings of the environment as a temporal and spatial web of interspecies dependence (2017). I suppose in these terms, I diverge from O'Gorman's use of the term through my interest in the process by which individuals or communities become aware that they are part of this web of interspecies dependence. That is, in the spirit of Benedict Anderson, I focus on the history of the imagining itself.

I am particularly interested in the role played by listening and sound in the development of imagined ecologies. So, I rely as well on Jeff Titon's conceptualization of the "sound commons" and Steven Feld's "acoustemology" to think about the acoustic epistemology of a multi-species ecosystem (Feld 1982; Titon 2012, 2016). Again, my interest is in better understanding the process by which ecological ways of thinking are formed and stabilized. It is related to the concept of ecological imagination that Aaron Allen developed in his examination of 19th-century Italian music publications; Allen shows how the music community understood aesthetics, politics, and the environment to be intertwined. He describes an ecological imagination that is separate from the imaginer's reality but founded on experiences of reality (Allen 2016: 274). Methodologically, I have taken an approach similar to Allen's, treating instruction manuals and training records as sources to plumb the perceptual frameworks of past people. But we differ in that I would claim that the imaginer's reality is the only one we can know.

The imagined ecology of the hunting community makes the exercises of sounding, listening, and judging duck calling competitions possible. The divergence of the "meat" and "competition" calling, to the point that the sounds are intended for different species' ears and values, is further evidence of the historicity of duck sounds. The duck hunting community has conceived of the environment, their place in it, and their relationship to other organisms in it in

a very specific way. A close reading of sources related to the development and use of duck calls shows how hunters saw themselves as fulfilling many roles in wetland systems. A straightforward, anthropocentric reading shows that they functioned as natural resource managers both directly (as hunters) and indirectly (as financial supporters through duck stamp purchases and ammunition taxes). Approaching instructional manuals and training records as evidence of a sound commons reveals a more sophisticated acoustemology. I argue that the hunters' imagined ecology was one in which humans not only toggled between the tasks of harvesting and conserving natural resources, but also moved between species. That is, humans (at least) could don and shed the sonic identities of others.

The material and intellectual culture of early 20th-century waterfowl hunting is unfortunately a mostly unexplored topic among historians. Hunters devoted an enormous amount of time to engaging directly with nature and, in doing so, fashioned their own frameworks for understanding what was natural and wild. The sources related to the hunting community are varied and rich. To better understand the formation and maintenance of the imagined ecology of the Mississippi Flyway, we could also look at traditional materials such as correspondence, print media, sportsmen's trade journals and catalogues, changes in wildlife and game management practices, the campaigns of various interest groups, land use maps, *Wildlife Radio* scripts, the game calls themselves, oral histories of the callers and call-makers, descriptions and illustrations of hunting, and more. In this essay, I focus on duck calling instruction manuals and training records because they are both compelling and challenging sources.

In what follows, I will briefly discuss the larger cultural and intellectual shifts that made the mid-20th-century imagined ecology of hunting possible. Through an analysis of duck calling instructional manuals and training records, I will show how the duck hunters' imagined ecology was developed and what form it took. I will then discuss the sounds themselves and how they were heard by ducks and humans, which will bring us back to the duck calling competition and some concluding remarks.

The Cultural and Intellectual Watershed of the Mississippi River Flyway

The Mississippi River Flyway extends from the headwaters of the Mississippi, from Minnesota to Ohio, southward to the Gulf of Mexico. In the first decades of the 20th century, the federal government initiated several projects to channel and stabilize the river basin. In 1917, the US Army Corps of Engineers completed Lock and Dam No. 1 of what would eventually be a system of 29 locks and

dams. The larger goals were to create a permanent navigable waterway for commerce, drain arable land, aid flood control, and store irrigation water. This national effort was coordinated with regional ones such as the rehabilitation of the Grand Prairie of Arkansas (where Stuttgart is located). The introduction of rice farming to the state in 1904 and related innovations in irrigation benefitted from the new national interest in wetlands management. Enormous numbers of wintering ducks were drawn to the region which was, in turn, promoted as a sportsman's paradise.

The images of flooded fields and wetlands blanketed with birds, circulated by local boosters on postcards and in newspapers, were striking because they were new (Mosenthin 2015: 85). Lack of hunting regulations, wetlands destruction, and a series of droughts in the Midwest had contributed to a steady decline in the nation's waterfowl population by the first decades of the 20th century. In response to the impending crisis and pressure from the Audubon Society, the US Congress passed the 1918 Migratory Bird Treaty Act, which granted the federal government the power to establish and preserve wetlands as waterfowl refuges. The 1929 Migratory Bird Conservation Act built on the Treaty and in 1934, the Migratory Bird Hunting and Conservation Stamp Act, usually called the "Duck Stamp Act," provided a vehicle for funding wetlands conservation through the required purchase of an annual federal hunting stamp for every waterfowl hunter over the age of sixteen. Subsequent wetlands restoration and conservation helped the waterfowl population to rebound. The sale of the annual Duck Stamp continues to be a significant source of wildlife conservation revenue.

Currently, more than 325 bird species pass through the region to migrate between breeding grounds and wintering grounds. By the 19th century, hunters were using sound to lure down the passing birds. The Mississippi River Flyway has been and continues to be the dominant region of game call development. The earliest North American duck call design was documented in 1854. The first duck call patent was issued in 1870, and print advertisements for hand-turned duck calls can be found in documents from the 1880s. In the 1930s, the production of duck calls both fueled and was facilitated by wetlands restoration as well as by innovations in mass manufacture. Calls were made of wood, plastic, hard rubber, and cane. Reeds were made of metal (copper, brass, tin), rubber, plastic, and cane. A revivalist interest in American folk traditions in the 1970s prompted a reintroduction of wooden calls.

In addition to shifts in wetland policies, agricultural innovation, and material culture, naturalists and scientists were developing new ecological concepts. In 1935, the botanist Arthur Tansley introduced the concept of "ecosystem" as a basic unit in nature that included organisms and biomes.

In subsequent decades, biologists proceeded to carve up the unity for which Tansley advocated, focusing instead on specific communities (e.g., "plant community," "insect community") or relationships between species (e.g., parasitic, etc.). Others, such as Victor Shelford and Frederic Clements, worked against this splitting impulse and instead focused on the relationships between animal and plant communities. In their co-authored book *Bio-Ecology* (1939), Shelford and Clements explained that the separate studies of plant and animal ecologies had distorted the science of ecology. They asserted that nowhere were there habitats "in which both plant and animal organisms are able to live, in which both do not occur and influence each other" (1939: v). In a landmark paper on cyclic plant succession, Alexander Watt explicitly called for a return to Tansley's holistic approach (1947: 20-22). Paraphrasing T. S. Eliot's essay, "Apology for the Countess of Pembroke," Watt argued that scientists must know all interrelations and parts in order to know any of it. For both practical and scientific reasons, he called for a return to the perhaps idealistic goal of studying ecosystems as wholes.

The practical application of the concept of an environment as a system of mechanically interrelated organisms, processes, and biomes was already underway in natural resource management fields. In *Game Management* (1933), for example, Aldo Leopold was already describing a complicated interrelationship between natural resources, wildlife especially, and humans. He saw the need for a new ethic for natural resource management, one he would develop more thoroughly in subsequent writings as the "land ethic" (2013 [1949]: 171-89). His recommended techniques and strategies for wildlife conservation ensured that *Game Management* had far more direct impact on federal wildlife management policy and practices than *Sand County Almanac*. He explained that "every head of wild life still alive in this country is already artificialized, in that its existence is conditioned by economic forces" (1989 [1933]: 21). Leopold's point about the economic value of wildlife shows that, by 1933 already, features like "wildness" could be understood as a commodity value. The perspective of the land managers, the policy-makers, and even the hunters enabled them to toggle between thinking of wild creatures as part of a separate, wild place and as part of their own human political economies, to be manipulated for human benefit. I find this switching of perspectives, together with the shedding and donning of identities (such as using duck calls to sonically masquerade as ducks), especially compelling. I propose some rhetorical hand-waving here to underscore my larger argument in this essay: The hunters' *imagined ecology* made it possible for them to swap between meat calling and competition calling as well as between the sonic identity of humans and the sonic identity of ducks.

How to Call Ducks

As the production of duck calls industrialized in the 1930s, marketing materials both expanded the consumer base of duck call companies and standardized the practices and sounds of duck calling. These marketing materials offer hints about how hunters conceived of their relationships with these animals, and the role of sound in navigating these relationships. The opening epigraph of this paper, for example, from Tom Turpin's contribution to *Field and Stream* (1931), instructed readers in the construction, tuning, and use of duck calls. Turpin insisted that the most important part of mastering duck calling was to learn the bird's language.[3] That is, good calling consisted of not only accurate imitation broadly speaking, but also the accurate imitation of specific and appropriate calls.

The beginner, Turpin explained, should start with vocal grunting exercises, without the duck call. After several weeks he may actually take up the duck call and place it to his lips and work on grunting through it. Once the novice is able to grunt into the call and "change the pitch of tone in the musical scale," Turpin felt he could undertake a simple quack (1931: 30-1). Then, Turpin advised, he should slide with a few quacks into the feed call, "thinking intently [of] every note and change of tone to be made" (30-1). Do not, Turpin insisted, move onto any other call until the feed call is mastered. If the caller found himself slipping out of the grunting position, then it was back to grunting exercises again. After the feed call, Turpin recommended practicing the chatter by grunting "taker-taker-taker" very slowly in perfect time and rhythm without breaking for breath. This was to be done for several weeks. The novice caller was then ready to speed up his chatter call. At this point, Turpin instructed his readers to contact him directly for fuller instructions.

The caller also had to train his ears. In his 1928 piece, "The Neglected Duck Call," Nash Buckingham explained that most novice duck hunters only heard ducks saying quack (1943 [1928]). The differences between the wood duck's yodel; the sprig's lilting, two-note quip; the gadwall's croak; and the teal's "tee-hee-tee-ho" were all lost on untrained ears. Buckingham encouraged novices to "study ducks, study tone, and learn to apply their measured tonal characters" (1997 [1933]: 163). If possible, they should eavesdrop on live ducks during feeding time at dawn and dusk and then try to reproduce "their conversational exchanges in quality of tone that blends and sets them off into gladsome refrains" (164).

Two decades later, Herter's Inc., the sporting goods juggernaut based in Waseca, Minnesota, recommended a technologically updated version of this eavesdropping. In their *Complete Professional Duck and Goose Calling Manual* (1951), they recommended combining the manual with their phonograph

records of expert callers (more on these records in a moment). The instructions for mallard calling included photographs of the proper way to hold the call and position the mouth, as well as several diagrams of the pitch and timing of various calls (see Fig. 1). Those familiar with the early diagrams of bird songs used by naturalists and ornithologists will see similarities here. Pitch is represented on the y-axis and time on the x-axis. This graphic representation, however, includes a feature I have not seen in any other bioacoustics context: sound made and sound heard are represented separately. The smaller print indicates what the sound the caller should be saying into their call: "Hoot." The larger print indicates the sound heard: "QUACK." "DugawDugawDugaw" is apparently the same sound in both production and reception.

The discussion devoted to mallard calls in Herter's manual is so lengthy partly due to the diagrams but mostly due to the number of calls described. Turpin refers to a feed call and a chatter call. Herter's manual includes two kinds

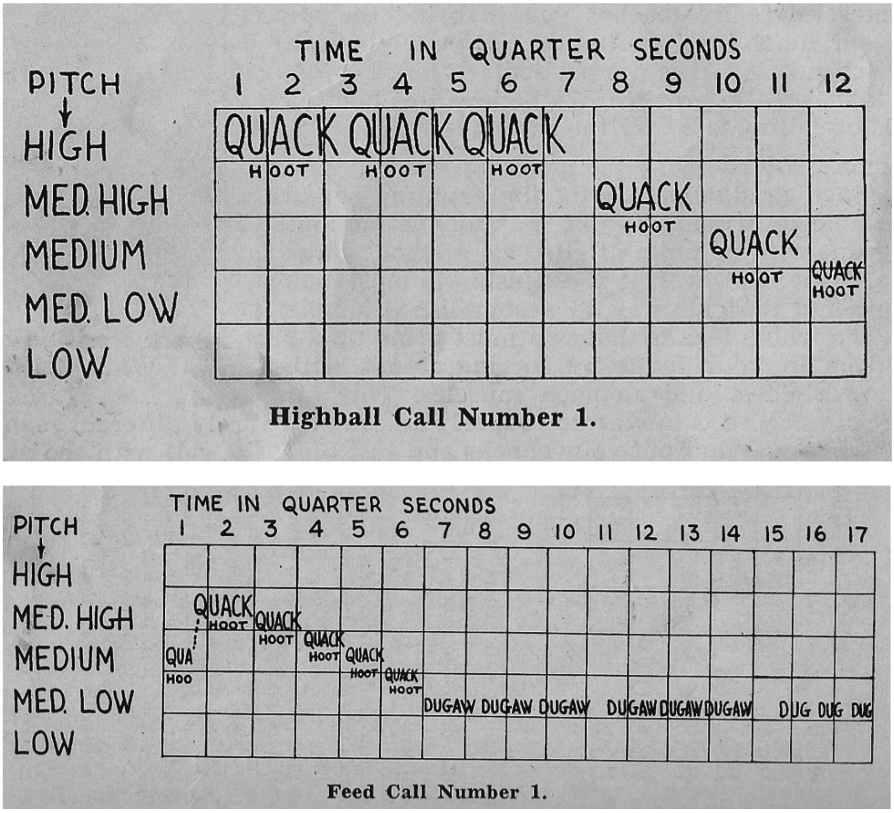

Fig 1. Highball and Feeding Call, Complete Professional Duck and Goose Calling Manual. Herter's Inc., 1951.

of highball calls (used to draw in passing birds at long distances), two kinds of greeting calls, two feed calls, a comeback call, chatter call, cluck call, the (regional) Paducah call, grass feed call, surprise recognition call, the lonesome hen or straight call, the drake mallard call, the exercise call, and the alarm call. In the 20 years following the introduction of both mass-produced game calls and wetlands management policies, an explosion in the number and types of calls occurred. Certainly, the Mississippi Flyway got louder. Additionally, the training process became infused with the trappings of science and the goals of standardization. Turpin's "Eh, just come find me and I'll show you" advice gave way to a perceived need for formal training resources such as diagrams, exercises, and records, to which we now turn.

Sound-training Recordings for Humans

I refer here to recordings made to train listening and/or mimicry skills, so as to both perceive and generate sound. These can be organized into two overlapping forms, both of which continue to be used by birders and hunters today. The story of the development of the first form, recorded nature sounds, is a better-known narrative (Bruyninckx 2018). It traditionally begins with the 1931 release of *Bird Songs Recorded from Nature*, a series of field recordings made by Albert Brand and M. Peter Keane of the Cornell Lab of Ornithology. The sound quality of previous attempts to record birds in the wild was poor for two main reasons: first, the wild birds refused to sing when caught and placed in front of a phonograph horn; second, when the studio equipment was trundled out-of-doors to record a bird in situ, the bird's song was often difficult to distinguish from the other sounds of nature picked up in the same recording. Brand and Keane's great innovation was to use a parabolic reflector with their microphone to isolate the targeted bird's song. Over the following two decades, recordings of nature sounds were mostly generated by scientific institutions and Folkways Records.[4] The first generation of these records consisted mostly of a series of tracks, each showcasing a single species. Later records, in part due to innovations in sound editing, began to include tracks of entire soundscapes. These were used for additional ear training and as decontextualized background music.[5] This latter use was part of an explosion of non-music sound records in the 1950s and 60s that included nature sounds as well as anthropogenic sounds of trains, typing pools, race cars, and so on.

The second form of sound-training records, which feature human-made nature sounds, predates recordings of animals in the field. Mimicry records date back to the late 19th century, with human imitations of bird sounds

produced by whistling, voice, or device, emerging to meet the need for sound effects for live vaudeville shows, radio broadcasts, and early silent film.[6] These records capture a separate turn-of-the-century performance whistling trend that professional practitioners framed as representations of nature precise enough to be considered legitimate scientific and pedagogical tools.[7] Charles Kellogg and Edward Avis, who dominated the mimicry records market and also toured as performers through the 1920s, were accepted as naturalists and made regular appearances at Audubon Society meetings.

Several outdoorsman and hunting companies began to generate their own calling records with the express purpose of training the listening and sound-mimicry skills of hunters.[8] The first of these, Hofmeister and Miller's *Duck and Goose Calling*, was released in 1947 by Herter's, Inc. Several game call companies soon introduced their own instructional records.

P.S. Olt expanded the sonic enterprise. His son, Phil Olt Jr., was considered a "Master Caller." In 1950, Phil Jr. recorded five separate instructional and demonstration records, each devoted to a different game animal (mallard, goose, crow, diver duck, and squirrel, respectively). Within a decade, the company also released an instructional record for predator calling, fox calling, and moose calling. The accompanying jacket explained that Olt's calling was distinctive for "its extreme simplicity and its element of TRUE tone" (Olt c.1950). Records could be purchased à la carte, in sets of three or five, or in a kit with the accompanying Olt Call (see Fig. 2). The narration included general hunting tips, instructions on the most effective use of the calls, and demonstration tracks for the hunter to "hear exactly how his call should sound when correctly operated" (c. 1950).

Herter's, Inc. in turn introduced additional calling records for crow, deer, predators, and elk. The company promoted their records as compilations of all the greatest callers (a possible jab at Olt Jr.) and just as important as a hunter's gun. Certainly, money spent on shells and additional equipment was wasted on a poor caller. Further, the promotional material explained, the easiest and best way to learn calling was from a record (Herter 1951: 5).

In this same period, bioacousticians and ethologists studying the hearing sense in animals had redefined their criteria for the sensory perception of sound. The experimental standard became the measurement of *biologically significant* sound (Moulton 1956). That is — reflecting the dominant behaviourist psychological theories of the time — an individual animal's perception of a sound could only be claimed if the sound resulted in a behavioural effect in the animal. We can use this measure (behavioural effects) to consider how birds might have listened to the sounds issuing from the hunters' blinds, some made by hunters employing game calls, while others were actually the recorded and replayed voices of their fellows.

Fig 2a. Olt's Instruction Records and Kit, Olt Hunting Manual. P.S. Olt, c.1950.

Fig 2b. Olt's Instruction Records and Kit, Olt Hunting Manual. P.S. Olt, c.1950.

Anecdotally, the birds behaved as if they were increasingly suspicious towards the end of their migration.[9] Turpin noted in his 1931 article, "How to Call Ducks," that while the duck call language for mallards changed little between Minnesota and Louisiana, the language for successful hail calls varied geographically among the large open lakes of the north, the pin-oak flats of Arkansas, and the swamps of Louisiana (82). By the 1950s, Herter's manual included a description of "call-shy" ducks. These birds had heard so many hunters' calls that nothing would bring them in, not even the voices of their fellow wild birds "until they [got] over their case of shell shock and jumpy nerves" (Herter 1951: 11). The regional variation in hunters' calls remains today: the Arkansas and middle Tennessee calls are higher pitched than the raspy low ones of the Mississippi and Louisiana bayous. The sounds of the northern end of the flyway altered the way the sounds in the south were heard by birds and made by humans.[10] For methodological fun, we can reverse-engineer this: mapping the historical and regional variation in game call sounds can give us insight into the ducks' changing sounds and maybe even ways of listening. Maybe the ducks really did sound different a hundred years ago, not just to hunters but to each other too.

Let's look at another example of effective nature-imitating technologies. In the early 1960s, Wightman Electronics, Inc. introduced a rugged portable record player with loudspeaker attachment that ran on twelve D cell batteries (see Fig. 3). Hand-cranked, portable record players to be used out-of-doors had existed since the 1920s, but these original devices were intended for the novelty of playing back music out-of-doors. Recall that animals, birds especially, could not consistently be recorded in the field until the 1930s. The Wightman Electronics' "Call of the Wild" game and bird caller was intended for use by hunters. Wightman also sold a variety of 45 RPM records of duck, goose, crow, and predator calls.[11] These were recordings of animals made in the wild. The first hunting season demonstrated these decoy sounds to be far too effective. Maryland Fish and Game, for example, reported that in only four shooting pits, hunters were able to take down 1,285 geese in one day (Gilmore 1963: 155). The device was subsequently banned by federal law for goose and duck hunting but remained legal and enormously popular for crow hunting until the introduction of cassette tapes in the following decade.

The ducks and geese, as we know, heard their fellows and descended towards the hunters' shooting pits. The mimicry was too good. Conservation groups petitioned the government to enact restrictions, which it did. Hunters appeared to acknowledge that this was an unsportsmanlike practice.[12] J. Ellis Orr himself, the president of Wightman Electronics, Inc., explained that the company was in complete agreement with the federal law banning the use of the Call of the Wild device for duck and goose hunting (Orr 1963: 10).

Fig 3. Call of the Wild advertisement in Guns (December 1964).

This ethic did not apply, however, to pest and predator species, and sonic decoys remained legal for crows and varmints. A *Guns* article ("Caws in Hi-Fi") on the use of the field recordings of actual animals rather gleefully noted that after a heavy shooting, the decoy sounds would temporarily lose effectiveness in an area: "Crows that have been gunned require several weeks to recuperate from the Judas treatment" (Gresham 1964: 59). The birds appeared to avoid "the most natural sounding crow talk," unable to trust each other (59). For the surviving crows, it was a devastating behavioural change — they could not trust their own voices — and likely they listened much more attentively. The implications of the use of sonic decoys are especially cruel: in standardizing and broadcasting the flock's own voices back to them as decoys, the bird learns to fear its brethren and is, in turn, alienated from its own voice. If we are keeping track of changing bird sounds, mostly in the form of new listening and mimicry practices among hunters, here is another: the birds heard their own voices in a new and disturbing way.

Some Conclusions

In thinking about the changing soundscape of the Mississippi Flyway, I'd like to point out a couple of specific sonic shifts that may have been facilitated

by the human-made nature sound industry. First, there was a proliferation of manufactured nature sounds, such as the mass-produced calls and training records discussed in this article. Second, calling was increasingly standardized, which suggests that there was also a belief — among call manufacturers, hunters, competition judges, etc. — that there was an ideal call (tone, rhythm) that could be humanly mastered. But this ideal call was not expected to sound exactly like a duck (or goose or turkey) — otherwise, the use of "Call of the Wild" recorded duck sounds (made by ducks) would not have been so swiftly outlawed. That is, the goal of game calling does not appear to have been exact mimicry. The game calling instructional records, complete with demonstration tracks of the game calls in use, were released well after field recordings of animals in the wild were possible. Hunters didn't train from field recordings of actual animals. They trained from records of other hunters using game calls. I would hazard that this shows that call training, despite the modern trappings of science (the training records, the design and manufacture of the calls themselves, the graphs charting various calls), was more an extension of the established tradition of learning from other human callers.

And so, we return to the World Duck Calling Championship. Those 90-second performances would not be heard in a marsh, whether made by a duck or a hunter. Documentation of the competition's early years is scant but in its current form, duck calling competitions are currently adjudicated by three human judges. These judges, in a strange inversion of hunting practices, are hidden behind a screen, unable to see or be seen by the audience or the callers. The callers are judged based on volume and pitch as well as creativity of the routine. They are rewarded for pushing the sonic limits of their instrument. Nearly a century of duck calling contests has standardized a specific anthropocentric aesthetic. This contest-calling is, it should be noted, not what a duck sounds like to a duck hunter. These callers are deliberately not mimicking ducks. This is what a duck sounds like to human judges at a duck-calling contest.

In my effort to situate my work in the scholarly landscape at the beginning of this paper, I described my methods as similar to Aaron Allen's work on ecological imagination. I presume, however, that the perceptual frameworks revealed by instruction manuals and training records *were* the realities for the individuals. We cannot hear the ducks of 1936 and even if we could (via time-traveling duck?), we would bring all sorts of present values, skills, and biases to the exercise of listening to them. Blowing a 100-year-old duck call or playing a 50-year-old training record might bring us a little closer to the soundscapes of the past, but these objects are also highly mediated by both time and form. I've tried to show in this article that instruments of mimicry, whether or not

they were poor imitators, are a worthy means of accessing lost soundscapes and documenting the formation of an imagined ecology. Using sound as a means to explore the past can be rich and fruitful, but our claims are circumscribed. If we can only know the imagined ecology of the Mississippi Flyway through hunters' training materials, then we must be open to the possibility that this *was* their sonic reality. I have explored how these materials facilitated and enforced this imagined ecology.

It was and is a very specific one. Placing sound — its creation and its listening — at the centre of an analysis of the waterfowling community reveals a sophisticated ecological sound commons. Outdoorsmen and hunters spent and continue to spend an enormous amount of time outside, eavesdropping on birds and refining their mimicry skills. They recognize that in order to call down their quarry, they must imagine themselves conversant with other species, however briefly. They imagine a series of shifting sonic engagements in which species can change sonic identities. The ducks' sound making, the hunters' mimicry of these sounds, and the hunters' ways of hearing these sounds were all changeable. The ducks began to sound different in 1936 because the hunters changed them.

Notes

1. KSD AM St. Louis continued to broadcast the competition into the 1950s.

2. I have observed several duck calling competitions, including a regional qualifier for the World Championship Duck Calling Contest. I encourage readers to visit youtube.com for some examples of recent competitions.

3. This discussion of the language of animals has a layered history. In the 19th century, animals were increasingly anthropomorphized in children's literature. By the beginning of the 20th century, stories like *The Little Red Hen* were incorporated into school readers as morality tales in the US. In 1934, *The Little Red Hen* was made into a Silly Symphonies cartoon by Walt Disney studios. The character of Donald Duck was featured for the first time, refusing to help the Wise Little Hen plant or harvest corn. He both quacked and spoke (with a heavily quack-accented voice). It is difficult to know, absent a much more in-depth study, the extent to which the cartoon-watching population overlapped with the duck-hunting population and the nature of the cultural and intellectual exchange that potentially occurred.

4. Some noteworthy examples: *An Evening in the SapSucker Woods* (Cornell University Laboratory, 1958); *Sounds of a Tropical Rain Forest in America* (Folkways Records, 1952); *Songs of the Humpback Whales* (CRM Records, 1970).

5. Asch explained the popularity of his 1953 *Sounds of a Tropical Rain Forest in America* as follows: "After guys come home from a frantic day in the office, they put

on the rain forest, lean back, and soothe their fevered brows." (qtd. in C. P. Gilmore 1963: 155).

6. The earliest I can find is W. M. Clark's 1895/1896 70 rpm disc, *Whistling Mocking Bird* (Berliner 403).

7. Craig Eley argues that, despite later deference in popularity and scientific credibility to the field recordings of "real" animals in "real" environments, the enormously popular whistling recordings and performances should be treated as representations of nature (2014).

8. Most of these were released as both 45 RPMs and 78 RPMs.

9. To become "suspicious," of course, implies conscious thought. Contemporary behavioral ecologists might say instead that the ducks were evolving as those whose genetic programs enabled them to distinguish truthful sound signals (made by other ducks) from deceptive ones (made by duck callers) survived and spread their genes to successive generations, while those who could not make those distinctions were killed by hunters. A rapid evolutionary adaptation, in other words.

10. But we cannot presume that the birds' listening necessarily changed over their migration and should consider the possibility that the hunters experienced an auditory confirmation bias (and anthropocentrically assumed their quarry was aware of their presence).

11. Smith's and Acto also made 45s to be played on the "Call of the Wild" device, including turkey and various distress calls.

12. This is not unlike current birdwatching ethics. The use of recorded bird call playback apps to draw the attention and response call, which helps the birder locate the individual, is known to alter birds' behaviour and is therefore frowned upon. The National Audubon Society has an official statement on the ethics of using playback apps while birding (http://www.audubon.org/news/how-use-birdcall-apps), based on David Sibley's statement, posted on the website for his enormously popular bird guidebooks (http://www.sibleyguides.com/2011/04/the-proper-use-of-playback-in-birding).

References

Allen, Aaron S. 2016. New Directions: Ecological Imaginations, Soundscapes, and Italian Opera. In *Current Directions in Ecomusicology: Music, Culture, Nature,* 273-85. Ed. Aaron S. Allen and Kevin Dawe. New York and London: Routledge.

Anderson, Benedict. 1983. *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. London: Verso.

Bruyninckx, Joeri. 2018. *Listening in the Field: Recording the Science of Birdsong.* Cambridge, MA: The MIT Press.

Buckingham, Nash. 1997 [1933]. The Neglected Duck Call. In *The Shootinest Gent'man and Other Tales*, 151-170. Lyon, MS: Wing Shooting Classics.

Clements, Frederic and Victor Shelford. 1939. *Bio-Ecology*. New York: J. Wiley & Sons, Inc.

Eley, Craig. 2014. "A Birdlike Act": Sound Recording, Nature Imitation, and Performance Whistling. *The Velvet Light Trap* 74: 4-15.
Feld, Steven. 1982. *Sound and Sentiment: Birds, Weeping, Poetics and Song in Kaluli Expression.* Philadelphia: University of Pennsylvania Press.
Fletcher, John Gould. 1989 [1947]. *Arkansas.* Fayetteville, AR: University of Arkansas Press.
Gilmore, C. P. 1963. This is Hi-Fi? *Popular Science* 182 (3): 72-75, 155.
Gresham, Grits. 1964. Caws in Hi-Fi. *Guns* 10 (12-120): 28-29, 59.
Herter, George. 1951. *Complete Professional Duck and Goose Calling Manual.* Waseca, MN: Herter's Inc.
Leopold, Aldo. 1989 [1933]. *Game Management.* Madison, WI: University of Wisconsin Press.
Leopold, Aldo. 2013 [1949]. *Aldo Leopold: A Sand County Almanac and Other Writings on Ecology and Conservation*. New York: Literary Classics of the United States, Inc.
Mosenthin, Glenn. 2015. *Images of America: Stuttgart.* Charleston, SC: Arcadia.
Moulton, James. 1956. Influencing the Calling of Sea Robins (Prionotus spp.) with Sound. *Biological Bulletin* 111 (3): 393-98.
O'Gorman, Emily. 2017. Imagined Ecologies: A More-Than-Human History of Malaria in the Murrumbidgee Irrigation Area, New South Wales, Australia, 1919-45. *Environmental History* 22 (3): 486-514.
Olt, Philip. c.1950. *Olt's Instruction Recordings.* Pekin, IL: P.S. Olt Co.
Orr, J. 1963. PS Readers Talk Back. *Popular Science* 182 (6)*:* 8, 10.
Tansley, Arthur. 1935. The Use and Abuse of Vegetational Concepts and Terms. *Ecology* 16: 284-307.
Titon, Jeff Todd. 2012. A Sound Commons for All Living Creatures. *Smithsonian Folkways Magazine* (Fall/Winter). https://folkways.si.edu/magazine-fall-winter-2012-sound-commons-living-creatures/science-and-nature-world/music/article/smithsonian (Accessed December 10, 2014).
———. 2016. Orality, Commonality, Commons, Sustainability, and Resilience. *Journal of American Folklore* 129 (514): 486-497.
Turpin, Tom. 1931. How to Call Ducks. *Field and Stream* (September): 30-1, 69, 82-3.
Watt, Alexander. 1947. Pattern and Process in the Plant Community. *Journal of Ecology* 35 (1/2): 1-22.